education

Department:
Education
PROVINCE OF KWAZULU-NATAL

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P2

MARKING GUIDELINE

COMMON TEST

JUNE 2020

MARKS: 75

This marking guideline consists of 11 pages.

QUESTION 1: MULTIPLE-CHOICE QUESTIONS

The questions below are based on the 1:50 000 topographical map 2731BC PONGOLA, as well as the orthophoto map 2731 BC 13 as part of the mapped area. Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A – D) in the block next to each question.

1.1 The Onverwacht Boarder Post separates … from KwaZulu-Natal.

A Swaziland.
B Mpumalanga.
C Free State.
D Lesotho.

A✓

1.2 The topographical map of Pongola was drawn using the … projection

A Lambert
B Gauss conform
C Mercator
D Transverse

B✓

1.3 … aerial photos are used to create the orthophoto map.

A Horizontal
B Vertical
C Satellite
D Oblique

B✓

1.4 The size of the Aerodrome in block **D 7** on the topographical is different from its size on the orthophoto map because the scale of topographical map is … than the scale of the orthophoto map.

A 5 times larger
B 5 times smaller
C 20 times larger
D 20 times larger

B✓

1.5 31 in the index number 2731 BC refers to …

A 31^0 north of the Equator.
B 31^0 south of the Equator.
C 31^0 west of Greenwich Meridian.
D 31^0 east of Greenwich Meridian.

D✓

1.6 The index sheet east on the orthophoto map 2731 BC 13 Pongola is …

A 2731 BC 14.
B 2731 BC 12.
C 2731 BC 17.
D 2731 BC 19.

A✓

1.7 The co-ordinates of the confluence **K** in block **F 3** is …

A 27°23'36"E and 31°32'52"S / 27°23, 5'E and 31°32, 7'S
B 27°23'36"S and 31°32'52"E / 27°23, 5'S and 31°32, 7'E
C 31°32'52"S and 27°23'36"E / 31°32, 7'S and 27°23, 5'E
D 31°32'52"E and 27°23'36"S / 31°32, 7'E and 27°23, 5'S

B✓

1.8 The stream order at **K** in block **F 3** is …

A 4.
B 3.
C 2.
D 1.

C✓

1.9 The Sigungu River demarcated **P** on the topographical map shows characteristics typical of a … river.

A exotic
B perennial
C seasonal
D episodic

C✓

1.10 The fluvial feature marked **L** in block **B 4,** on the topographical map, forms mainly in the … course/s of the river.

A middle and lower
B lower
C middle
D upper

D✓

1.11 The landform that restricts farming in block **F 7** on the topographical map is a …

A plateau.
B conical hill.
C mesa.
D mountain.

B✓

1.12 The type of road that links Pongola to Golela on the orthophoto map is a ...

A secondary road.
B main road.
C national freeway.
D arterial route.

C✓

1.13 The man-made feature responsible for the linear-shaped settlement pattern in block **J 7** on the topographical map is the …

A road.
B fence.
C boundary.
D river.

A✓

1.14 The silo in block **F 10** is used as …

A residence for workers.
B storage for machines.
C storage for water.
D storage for agricultural products.

D✓

1.15 The source of water available for farming in block **J 2** on the topographical map is a …

A furrow.
B canal
C dam.
D windpump.

C✓

(15 x 1) **[15]**

QUESTION 2: MAPWORK TECHNIQUES AND CALCULATIONS

2.1

2.1.1 Calculate the area, in km², of the aerodrome marked **9** on the orthophoto map. Show ALL calculations. Marks will be awarded for calculations.

Formula: Area = length x breadth

L = 10,8 cm ✓x 0,1 km = 1,08 km ***Range (10,7 cm – 10, 9 cm)***

B = 0,7 cm✓x 0,1 km = 0.07 km ***Range (0.6 cm – 0.8 cm)***

A = 1,08 km x 0,07 km ✓

= 0,0756 km^2 ✓ ***Range: 0,0642 km^2 – 0,0872 km^2]*** (4 x 1) (4)

2.2 Refer to spot heights **5** and **6** on the orthophoto map.

2.2.1 Calculate the average gradient between the two spot heights. Show ALL calculations. Marks will be awarded for calculations.

Formula: Average gradient = $\frac{\text{Vertical interval}}{\text{Horizontal equivalent}}$

VI ***= 269 m – 259 m***
= 10 m ✓

HE ***= 13,4 ✓cm x 100*** ***[Range: 13,3 cm – 13,5 cm]***

= 1 340m ✓ ***[Range: 1 330 m – 1 350 m]***

G $= \frac{10\ \checkmark}{1\ 340}$

[Mark allocated for correct substitution]

= 1: 134 ✓ ***[Range: 133 – 135]*** (5 x 1) (5)

2.2.2 Explain your answer to QUESTION 2.2.1.

For every 134m of horizontal distance covered the land rises by 1m ✓✓ (1 x 2) (2)

2.3 Update the magnetic declination for the current year (2020). Marks will be awarded for calculations.

Difference in years	=	***2020 – 2002 = 18 years*** ✓	
Annual change	=	***12'W***	
Total annual chance	=	***18 years x 12'W*** ***216'W*** ✓	
Magnetic declination: 2020	=	***20° 06'W +*** ✓ ***216'W*** ***20° 222'W*** ✓ ***20° + 3° 42'W*** ***23° 42'W*** ✓	(5 x 1) (5)

2.4 Determine the magnetic bearing for 2020 of trigonometrical beacon **81** in block **H 7** from spot height **421** in block **G 5** on the topographical map.

Formula: Magnetic bearing = True bearing + Magnetic declination

=	***136°*** ✓ ***+ 23° 42'W*** ✓ ***[Range: 135° - 137°]***	
=	***159° 42'W*** ✓ ***[Range: 158° 42'W - 160° 42'W]***	(3 x 1) (3)

2.5 State the importance of calculating the magnetic declination for the present year.

To orientate the map ✓
The magnetic declination constantly changes ✓
To find an accurate direction ✓
To determine True North ✓
[ANY ONE] (1 x 1) (1)

[20]

QUESTION 3: APPLICATION AND INTERPRETATION

3.1 Refer to the Sipandlule River in block **F 2** on the topographical map**.**

3.1.1 Identify the predominant drainage pattern formed by the Sipandlule river and its tributaries.

Trellis ✓ (1 x 1) (1)

3.1.2 Give a reason for your answer to QUESTION 3.1.1.

The river is found on valley floor and is surrounded by steep slopes, which results in the tributaries flowing down the slopes and meeting the main river at right/90º angles ✓ (1 x 2) (2)

3.1.3 Describe the underlying rock structure associated with the drainage pattern mentioned in QUESTION 3.1.1.

Developed on landscape with inclined sedimentary rock/ alternate layers of hard and soft rock. ✓✓ (1 x 2) (2)

3.2 Refer to blocks **H 1** on the topographical map.

3.2.1 Identify the fluvial structure that controls water of the Phongolo river.

Pongola Weir/Weir ✓ (1 x 1) (1)

3.2.2 Assess the impact of this fluvial structure mentioned in QUESTION 3.2.1 on:

river discharge: ***It decreases river discharge***✓✓
It decreases the volume of water in a river✓✓

bio-diversity: ***Reduced water volume can kill and destroy natural vegetation***✓✓
Decreased water supply can negatively impact natural food webs✓✓
Force animals to migrate✓✓

[Accept ANY ONE for river discharge and ANY ONE for bio-diversity] (2 x 2) (4)

3.3 Refer to the Khozi farm in block **I 8**.

3.3.1 Provide TWO pieces of evidence, visible on the topographical map, in which Khozi farm has prepared for drought conditions often experienced in South Africa.

Presence of dams to store water ✓
Presence of reservoir to store water ✓
Presence of furrow to channel water ✓
[ANY TWO] (2 x 1) (2)

3.3.2 Discuss TWO factors that favoured the location of Khozi farm.

Gentle gradient ✓✓
Close to transport routes ✓✓
Water is accessible ✓✓
[ANY TWO] (2 x 2) (4)

3.4 Refer to the settlement in block **J 2** on the topographical map

3.4.1 Name the settlement pattern.

Dispersed ✓ (1 x 1) (1)

3.4.2 Discuss ONE advantage and ONE disadvantage of the settlement pattern mentioned in QUESTION 3.4.1.

Advantage: ***More privacy.*** ✓✓
Can make your own decisions. ✓✓
All the profit is your own. ✓✓
Better use of machinery and tools. ✓✓
[ANY ONE] (1 x 2) (2)

Disadvantages:
Not enough interaction with people. ✓✓
Not as safe as it is far from other people. ✓✓
Have to pay for all costs by yourself. ✓✓
Difficult to share ideas when you have a problem. ✓✓
Poor service delivery ✓✓
[ANY ONE] (1 x 2) (2)

3.5 Pongola serves as a central place town for the surrounding rural areas.

3.5.1 Give ONE piece of evidence on the topographical map that indicates that Pongola is a central place town.

Pongola has transport routes linking it to the surrounding rural areas ✓
It has many urban services ✓
(Can give examples e.g. church ✓ ***clinic*** ✓ ***school*** ✓ ***shop*** ✓ ***recreation*** ✓***)*** (1 x 1) (1)
(ANY ONE)

3.5.2 How will the roads passing through Pongola impact on the sphere of influence of the town?

The sphere of influence extends/larger/bigger/expand ✓ (1 x 1) (1)

3.5.3 Explain your answer to QUESTION 3.5.2.

The roads will increase the accessibility of Pongola attracting more customers. ✓✓
People will travel from further away to obtain goods and services in Pongola. ✓✓
The roads increase accessibility from different directions. ✓✓
The threshold population increases. ✓✓
The range would increase. ✓✓
[ANY ONE] (1 x 2) (2)

[25]

QUESTION 4: GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

4.1 The COVID -19 pandemic resulted in a national lockdown. The National Coronavirus Command Council (NCCC) required road blocks to monitor the movement of people. Subsequently, law enforcement required data of roads to determine where to locate these roadblocks.

4.1.1 Define the term *data layering.*

It is the placing of different layers on top of one another ✓ ***(Concept)*** (1 x 1) (1)

4.1.2 Suggest ONE type of data layer that could have been used to locate prospective roadblocks in the area.

Roads/national road/secondary roads/other roads ✓ (1 x 1) (1)

4.1.3 The topographical map was used to identify possible points where roadblocks could be located.

(a) Is the topographical map an example of Raster or Vector Data?

Vector ✓ (1 x 1) (1)

(b) Give a reason for your answer to QUESTION 4.1.3 (a).

Real life images are shown in the form of points, lines and polygons ✓ (1 x 1) (1)

(c) Give TWO reasons why the topographical map was chosen over the orthophoto map.

Information can be analyzed on a digital format ✓✓
The topographical map has a smaller scale so everything is shown in more detail ✓✓
The topographical map covers a larger area ✓✓
Has references to identify different types of roads ✓✓
Types of roads are colour coded, easy to identify national, secondary, other roads. ✓✓ (2 x 2) (4)
(ANY TWO)

4.2 Frontline workers from Pongola Hospital were deployed to the surrounding communities to conduct mass COVID-19 screening. Information obtained was stored in a database.

4.2.1 Define the term *database.*

It is the storage/collection of data/information that is organized so that it can be organized/updated in a central place ✓✓ (1 x 1) (1)
(Concept)

4.2.2 Some patients were tested positive during the screening process. This required patient contact tracing.

(a) Is contact tracing a primary or secondary source of data?

Primary source ✓ (1 x 1) (1)

(b) Give a reason for your answer to QUESTION 4.2.2 (a).

Direct observation/immediate/first hand/original source of information ✓ (1 x 1) (1)

(c) Explain how the process of data security assisted frontline workers in ensuring that information obtained during the screening process was protected.

Limited network sharing to authorized individuals ✓✓
Development of a data security or policy ✓✓
Creation of read-only access to files ✓✓
Development of strong passwords ✓✓
Use of specific codes to access files ✓✓ (2 x 2) (4)
(ANY TWO)

[15]

TOTAL MARKS: 75